

LIST OF FISHES COLLECTED ON TANEGA AND YAKU,  
OFFSHORE ISLANDS OF SOUTHERN JAPAN, BY  
ROBERT VAN VLECK ANDERSON, WITH DESCRIPTIONS OF SEVEN NEW SPECIES.

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For the year 1904-5, Mr. Robert Van Vleck Anderson, a graduate student of Stanford University, was engaged in the field study of the birds of Japan. On the islands of Yaku and Tanega (Yakushima and Tanegashima) he made an interesting collection of fishes of the tide-pools. Among the species obtained are seven which seem to be new

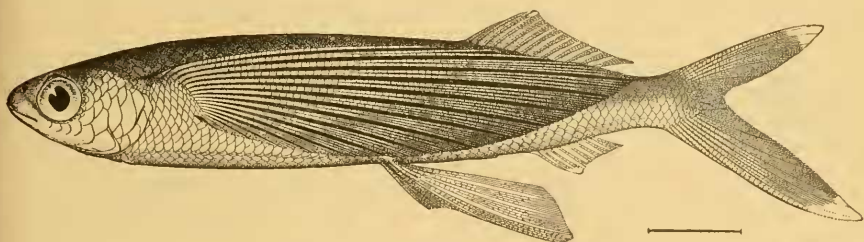


FIG. 1.—*CYPSILURUS AGOO*.

to science. These islands lie offshore, to the southeast of the large island of Kiusiu. Series of the specimens obtained are in the United States National Museum and in the collection of Stanford University. The figures presented in this paper were drawn by Mr. William Sackston Atkinson.

The new species are: *Corythoichthys tanakæ*; *Atherina morrisoni*; *Cristiceps flummeus*; *Blennius ellipes*; *Salaria andersoni*; *Salaria tanegasimæ*; *Petroscirtes loxozonus*.

Family ANGUILLIDÆ.

*ANGUILLA JAPONICA* Schlegel.

Two specimens from Miyanouura ("inlet of the temple"), Yakushima.

Family EXCETIDÆ.

*CYPSILURUS AGOO* (Schlegel).

One specimen from Yakushima.

## Family SYNGNATHIDÆ.

*CORYTHROICHTHYS TANAKÆ* Jordan and Starks, new species.

Head,  $8\frac{3}{5}$  in length to base of caudal; depth, 14. Eye, 5 in head; snout,  $2\frac{1}{2}$ ; dorsal, 20; body rings, 16-30.

Top of head steeply but nowhere abruptly sloping to snout; snout somewhat curved upward; a low median ridge on top of head in line with a similar ridge on occipital plate and on first body ring; these more or less separated at sutures between plates; a slight ridge running back from supraocular region; another slight ridge running horizontally across opercle; a prominent supraorbital tentacle present; a longer one, nearly as long as eye, on median ridge of head; and another smaller than the last on ridge of occipital plate, or frequently considerably at one side or the other of the ridge; snout a little shorter than postorbital part of head, a slight even ridge along its upper edge.

Body anterior to vent considerably deeper than wide in either sex; behind vent regularly quadrangular, broken only by the egg pouch in the male. A median ridge on belly from isthmus to vent. Lower lateral ridge of trunk in line with, but not continuous with lower



FIG. 2.—*CORYTHROICHTHYS TANAKÆ*.

ridge of caudal, separated from it by a very short interval opposite vent. Lateral ridge of trunk dipping abruptly down opposite vent and continued as lower caudal ridge. Upper ridges of trunk converging at occiput, sometimes the area between them at this point is concave; posteriorly each ridge ends under posterior third of base of dorsal. Upper caudal ridge bends down opposite dorsal and runs below posterior end of upper ridge of trunk, end of upper ridge of trunk ending opposite front of dorsal. Caudal pouch covering 15 rings and contained in caudal portion of body  $1\frac{5}{8}$  times. Length of pectoral equal to diameter of eye and slightly shorter than caudal. Dorsal covering one body ring and 4 caudal rings.

Color of male specimens dark brown with 10 or 11 light cross bars on back between upper ridges; 1 at occiput, 3 in front of dorsal, 1 under middle of dorsal, and the others spaced regularly behind dorsal, these bars usually not extending across sides, but in one or two examples they are faintly and irregularly indicated. Three conspicuous dark spots on upper part of side of trunk below upper ridge; the anterior are sometimes faint. Two light irregular streaks running downward from eye give the lower part of head a mottled appearance. The females are lighter; two of them nearly colorless, the other very light brown and with the cross bars extending down across the sides.

The dark lateral spots of the male are absent in our specimens of the female.

This species may be known by its short, thick, compressed body and by the coloration of the male. Eight specimens were collected at Tanegashima, in length from 57 to 70 mm. Five of them are males.

The type is 70 mm. long and is numbered 53271, U. S. N. M. A cotype is No. 9358, Stanford University. The species is named for Mr. Shigeo Tanaka, of the Imperial University of Tokyo.

#### Family ATHERINIDÆ.

##### ATHERINA MORRISI Jordan and Starks, new species.

Head, 4 in length to base of caudal; depth,  $4\frac{1}{2}$ . Eye,  $2\frac{3}{4}$  in head; snout,  $3\frac{1}{2}$ ; interorbital space,  $2\frac{2}{3}$ ; maxillary,  $2\frac{1}{2}$ ; dorsal, VI-I, 10; anal, I, 14; scales, 45.

Jaws equal; the maxillary reaching to below middle of eye. Teeth in narrow bands; narrower on lower jaw than upper. The teeth on palatine in a very narrow band not continuous with that of vomer.

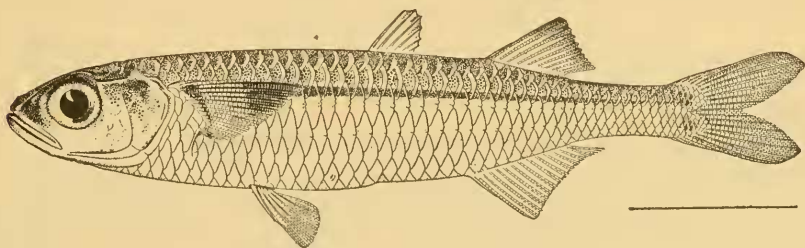


FIG. 3.—*ATHERINA MORRISI*.

Eye very large, equal to postorbital part of head. Gill rakers long and slender, the longest  $\frac{2}{3}$  of diameter of eye, 20 on lower limb of arch.

Scales with entire, but slightly uneven edges, feeling a little rough to the touch. Seven transverse series of scales below spinous dorsal; 18 scales in the median row on back between spinous dorsal and occiput; 8 between basis of dorsals.

Origin of spinous dorsal midway between base of caudal and middle of eye; distance from front of first dorsal to front of second contained  $1\frac{1}{4}$  in head. Pectoral sharply pointed, its longest ray  $1\frac{1}{2}$  in head, its tip reaching to above beginning of posterior third of ventral. Insertion of ventrals midway between front of anal and middle of eye; tips of ventrals reach  $\frac{2}{3}$  of distance from their bases to front of anal. Length of base of anal equal to distance from base of last anal ray to base of lower rudimental caudal rays. Vent just posterior to tips of ventrals.

Color dusky above with dark points, silvery below. A wide lateral band bordered above with a narrow lead-colored stripe. Lateral band entirely covering third row of scales below spinous dorsal and extending across lower angles of second row; its lower edge extends down

nearly to middle of fourth row. Scales on back slightly bordered with bluish. Snout and tip of mandible black; dorsals and caudal dusky; pectoral blackish toward tip; ventrals and anal with the least tinge of dusky, nearly colorless.

This species resembles *Atherina lacunosa* Forster in having a short stout body and large eye. It differs from it in having the maxillary longer and the lateral band wider. A specimen of the latter species from Sydney in the Stanford University collections has the maxillary reaching just past front of eye, scarcely to front of pupil, and upper edge of lateral band just above middle of third row of scales below spinous dorsal; its lower edge not reaching the lower points of the third row of scales, but slightly involving the upper points of the fourth row. From *Atherina tsuruga* it may be known by the longer maxillary, stouter body, and larger head and eye.

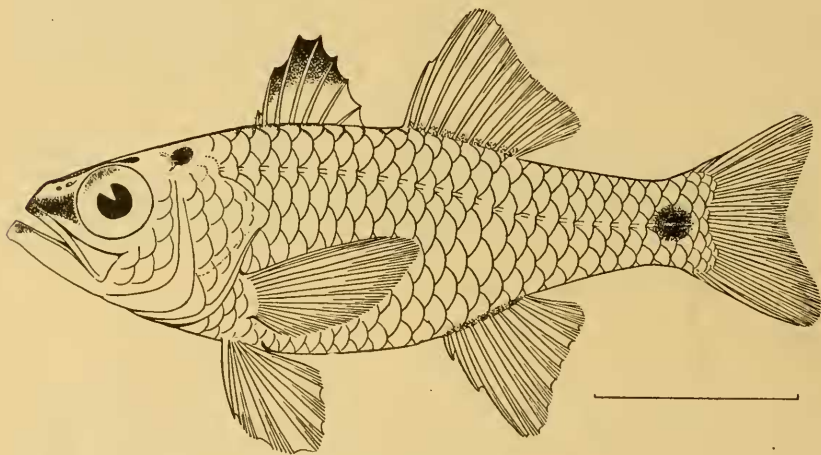


FIG. 4.—AMIA NOTATA.

The type and sole specimen is 12 cm. in length and was taken at Miyanonra, Yakushima. It is numbered 9359, Stanford University.

This species is named for Mr. Earl Leonard Morris, in recognition of his careful work on the fishes of Southern California.

#### Family KUHLIIDÆ.

##### KUHLIA TÆNIURA (Cuvier and Valenciennes).

Several small specimens from rock pools on Tanegashima.

The characteristic bands on the caudal of these young specimens are very conspicuous.

#### Family APOGONICHTHYIDÆ.

##### AMIA NOTATA (Houttyn).

One specimen from Yakushima.



Family KYPHOSIDÆ.

*GIRELLA PUNCTATA* Gray.

Several small specimens collected at Tanegashima and Yakushima.

Family LABRIDÆ.

*THALASSOMA CUPIDO* (Schlegel).

Many specimens collected at Miyanoura on Yakushima and two at Tanegashima.

Family CHÆTODONTIDÆ.

*CHÆTODON MODESTUS* Schlegel.

Two small specimens from rock pools at Tanegashima.

*MICROCANTHUS STRIGATUS* (Cuvier and Valenciennes).

A single young specimen 35 mm. in length, collected at Miyanoura, Yakushima. It has a distinct black blotch covering the basal half of

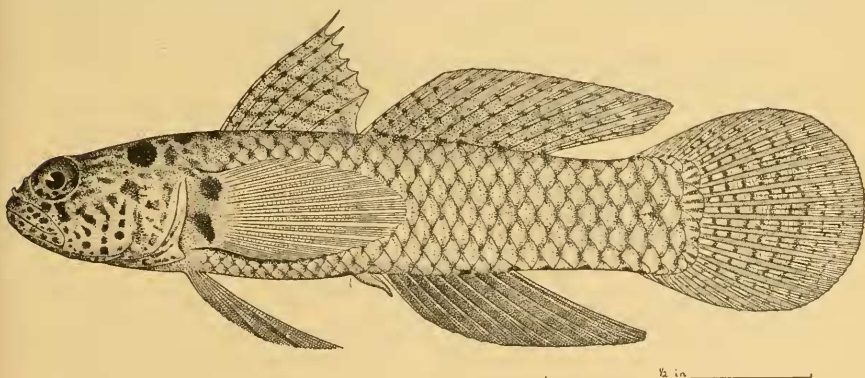


FIG. 5.—*EVIOTA ABAX*.

the anterior dorsal rays. A broken dark bar following base of anal rays. Nape with 3 cross bars, the third extending downward following edge of opercle.

Family CIRRHITIDÆ.

*CIRRHITUS MARMORATUS* Lacépède.

A specimen from Yakushima 15 cm. in length. This common species of the South Seas has not been previously recorded from Japan.

Family GOBIIDÆ.

*EVIOTA ABAX* (Jordan and Snyder).

Several specimens taken at Tanegashima. The second spine of the male of this species is of variable length, in some specimens reaching

just past front of soft dorsal, as in the figure published with the original description; in others it is filamentous and reaches past base of last dorsal ray. The anal and soft dorsal are higher in the male than in the female.

This species has the head naked and the preopercle entire. It is therefore not referable to *Asterropteria*, but rather to *Eviota* Jenkins. This species reaches a much larger size than any of the others placed by us in *Eviota*.

**RHINOGOBIUS HADROPTERUS** (Jordan and Snyder).

Numerous specimens taken one-fourth mile above mouth of the Miyanoura, on Yakushima. This species belongs to the subgenus or group called *Porogobius*.

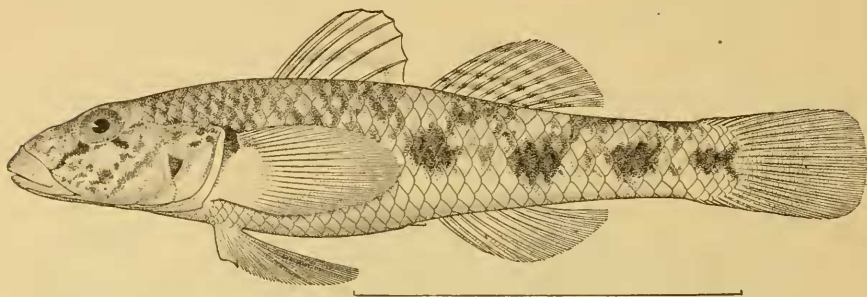


FIG. 6.—RHINOGOBIUS HADROPTERUS.

Family CHAMPSODONTIDÆ.

**CHAMPSODON VORAX** Gunther.

One specimen from Miyanoura, Yakushima.

Family BLENNIIDÆ.

**ENNEAPTERYGIUS ETHEOSTOMA** (Jordan and Snyder).

Several specimens taken at Tanegashima. All of the Pacific species referred to *Tripterygion* seem to be generically distinct from the type

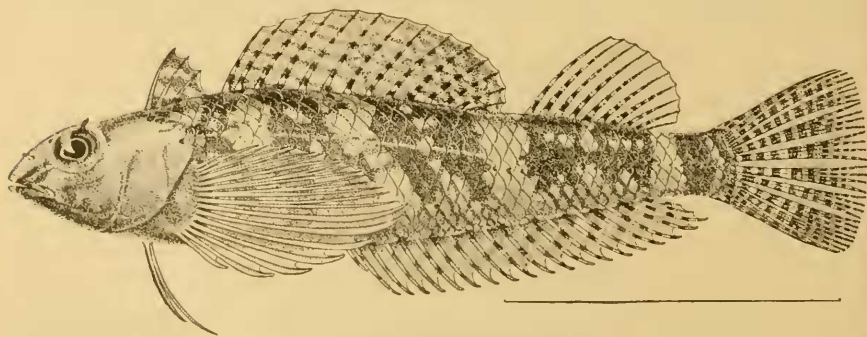


FIG. 7.—ENNEAPTERYGIUS ETHEOSTOMA.

of the latter genus, which is a species of the Mediterranean. We have therefore revived the name *Enneapterygius*, based on a species of the Red Sea.

**CRISTICEPS FLAMMEUS** Jordan and Starks, new species.

Head,  $4\frac{1}{5}$  in length to caudal base; depth,  $4\frac{1}{2}$ . Eye,  $4\frac{3}{4}$  in head; interorbital space,  $6\frac{1}{4}$ ; snout, 4; maxillary, 2. Dorsal III, XXVI, 5; anal II, 20. Scales, about 87.

Mouth rather oblique; the jaws equal. Maxillary extending slightly past posterior orbital margin. Teeth rather blunt; in a single row on sides of mandible, in a small patch in front, and in a band on premaxillary. Teeth on vomer in a crescent-shaped patch continuous with the palatine patches. Interorbital space narrow and appearing convex, but the bone is concave or channeled along its middle. Short, flat,

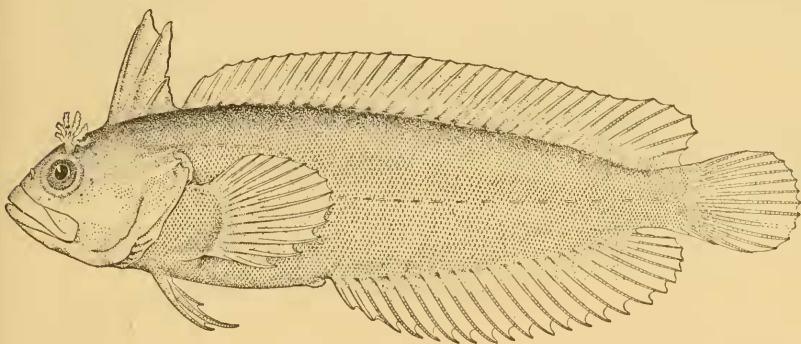


FIG. 8.—CRISTICEPS FLAMMEUS.

digitate flaps present above eyes; the divisions not extending to base of flaps and subdivided into fine fringers. The hooked process on shoulder girdle prominent.

First two dorsal spines equal in length and equal to distance from middle of eye to opercular flap; the third spine half as long and attached to extreme base of first spine of second portion of dorsal. Spines of second portion of dorsal growing gradually longer posteriorly; the last is shorter than soft rays, its length equal to combined length of snout and eye. Tips of last dorsal rays reaching to opposite base of caudal; the last ray attached to caudal peduncle by membrane. Anal spines shorter than rays, the second  $3\frac{3}{4}$  in head. Membrane of anal deeply incised; the last rays not reaching so far back as those of dorsal. Pectoral broadly rounded. Ventrals 3 rayed, the middle ray the longest, the inner ray half the length of the outer. Ventrals reaching two-thirds of distance from their base to front of anal. Caudal rounded.

Color in spirits everywhere light grayish without markings or shading. When received in formalin it was a bright orange. This species

is apparently more nearly related to *Cristiceps roseus* Günther than to any other. It differs in having palatine teeth and no nasal tentacle.

The type and sole specimen is 83 mm. in length, and was collected at Tanegashima. It is numbered 9360, Stanford University.

BLENNIUS ELLIPES Jordan and Starks, new species.

Head, 5 in length to base of caudal; depth,  $5\frac{1}{2}$ . Eye,  $3\frac{1}{2}$  in head; maxillary,  $2\frac{1}{2}$ ; snout, 3; interorbital space, 7. Dorsal XI, 20; anal 23.

Head shaped much as in *Salarias andersoni*, having the orbital region produced, the front of the head subvertical, and the mouth under the eye. Front of maxillary a little anterior to eye, and posterior end of maxillary about the same distance behind eye. This character is variable, owing to distortion of head. Teeth movable, in a single even row on jaws; about 30 on mandible; a strong hooked canine inside of each end of mandibular band. A long, slender, simple tentacle

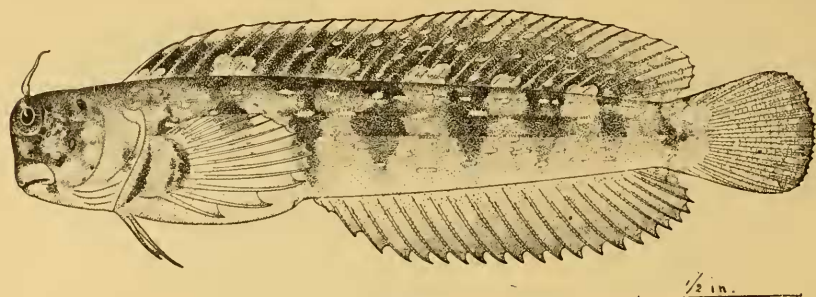


FIG. 9.—BLENNIUS ELLIPES.

present above eye; no nasal tentacle. Interorbital space narrow and concave. A ring of rather large pores extending irregularly around eyes.

Origin of dorsal considerably in front of the vertical from tip of opercle. Dorsal not notched; the rays unbranched and only differentiated from the spines by having cross articulations. Tips of last dorsal rays reaching to or a little past base of caudal; the last ray attached to caudal peduncle by membrane. Membrane of anal more deeply incised than that of dorsal. Pectoral rounded or obtusely pointed; its tip reaching to opposite vent. Length of ventral,  $1\frac{1}{2}$  in head.

Color light gray with dusky cross bands extending down to middle of sides. These are 7 in number, definitely arranged, their edges softly blended to the ground color, and each band separated at the middle into an upper and a lower portion. Dorsal dusky and somewhat marbled at base of spines and rays; anal growing slightly dusky toward tips of rays, caudal dusky, and inconspicuous light dots form faint cross lines; pectoral and ventrals light or sometimes very slightly dusky.



Numerous specimens were taken at Tanegashima and four at Yakushima; the longest 70 mm. in length.

The type is 60 mm. long and was taken at the former locality. It is numbered 53272, U. S. N. M. A cotype is No. 9361, Stanford University.

**SALARIAS ENOSIMÆ** (Jordan and Snyder).

Numerous specimens collected at Miyanoura, Yakushima, and at Tanegashima. They usually have the orbital tentacle fringed at the

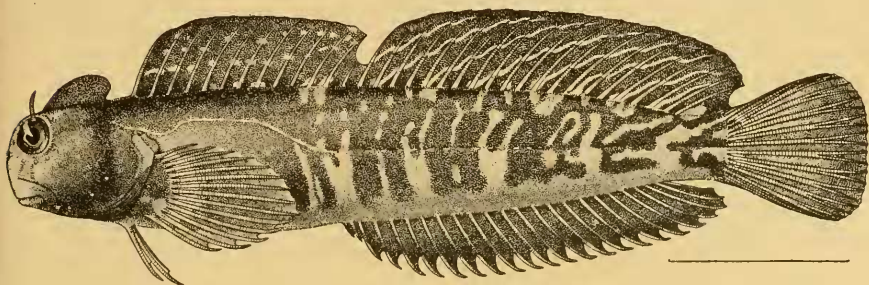


FIG. 10.—*SALARIAS ENOSIMÆ*.

edges and longer than in the typical specimens. This species, with the next two, belongs to the subgenus *Scartichthys*. This group differs from *Salaria* proper in having the dorsal conspicuously notched.

**SALARIAS ANDERSONI** Jordan and Starks, new species.

Head,  $5\frac{1}{3}$  in length to caudal base; depth,  $5\frac{1}{3}$ . Eye, 4 in head; maxillary, 3; interorbital space, 9. Dorsal XI, 19 or 20; anal, 20 to 22.

Head produced at orbital region and overhanging the mouth; region between eye and upper lip a little concave. Front of mouth under

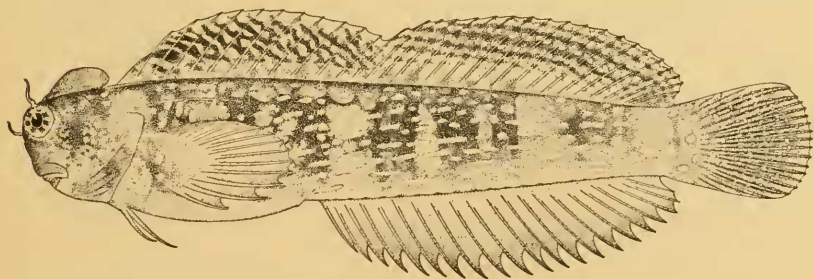


FIG. 11.—*SALARIAS ANDERSONI*.

front of pupil; maxillary extending considerable past eye. Teeth in a comb-like, single, even row, attached to flesh of jaws; upper lip not fringed. A rather long nasal tentacle present in front of eye, and a much longer, slender, supraorbital tentacle, attached to upper part of

eyeball. A high thin flap of skin on top of head extending from between posterior margin of eyes to occiput. Pores of lateral line not extending past tip of pectoral.

Notch between spinous and soft portions of dorsal not very deep, the membrane of the last spine extends  $1\frac{1}{2}$  times the diameter of the eye above the base of the first ray. Origin of dorsal a little in front of opercular flap; last dorsal rays extend slightly past base of caudal, and are bound by membrane to caudal peduncle; membrane between dorsal rays scarcely incised. Anal coterminous with dorsal; the membrane between anal rays incised nearly half way from base to tip of rays. Pectoral rather broad, its length equal to that of head. Inner ray of ventral the longer, its length  $1\frac{3}{4}$  in head. Caudal rather broadly rounded.

Color dusky brown, marked on sides with narrow, definite, longitudinal, light lines, interrupted at short and irregular distances. Distal half of dorsal spines crossed by small oblique, alternate light and dark lines, growing darker anteriorly. Soft dorsal similarly marked, but much lighter and the markings extending lower on fin. Anal dusky, growing gradually darker toward ends of rays. Pectorals and ventrals slightly dusky; caudal crossed by fine wavy lines.

This species may be known from other Japanese members of its genus by the produced orbital region, and by the color.

Four specimens were collected at Tanegashima, the type and largest specimen is 79 mm. in length. It is numbered 53273 U.S.N.M. Co-types are No. 9362, Stanford University.

The species is named for Mr. Robert Van Vleck Anderson.

**SALARIAS TANEGASIMÆ** Jordan and Starks, new species.

Head,  $4\frac{1}{5}$  in length to base of caudal; depth at ventral fins, 6. Eye,  $4\frac{1}{2}$  in head; snout,  $3\frac{1}{2}$ ; maxillary,  $2\frac{1}{2}$ . Dorsal XII, 18; anal, 20.

Snout blunt, broadly rounded in profile. Eyes projecting slightly above upper profile of head; separated by a very narrow concave inter-orbital space scarcely wider than diameter of eye. A rather long supraorbital tentacle of variable length and usually fringed on the edges is present. Mouth broadly curved and subinferior, the maxillary reaching to below posterior margin of orbit, upper lip fringed on the edge with a single row of papillæ. Teeth as in *S. enosimæ*. Top of head without a median crest of skin; sometimes a ridge or an inconspicuous low fold of skin is present.

Posterior rays of soft dorsal not reaching past base of caudal; in *S. enosimæ* they reach considerably past. Longest rays of soft dorsal contained  $1\frac{1}{5}$  in head;  $1\frac{1}{4}$  to  $1\frac{1}{2}$  in head in the latter species. Spinous dorsal a little lower than soft dorsal; the longest spines  $2\frac{1}{5}$  in head. Notch between spinous and soft rays of dorsal very deep, nearly separating the fin into two parts.

Color very much as in *S. enosimæ*, but the anal always white instead of black, and the dorsal without the narrow light lines.

This species differs from *S. enosimæ* Jordan and Snyder in having no median crest on top of head, the dorsal and anal fins not so high, and the anal white.

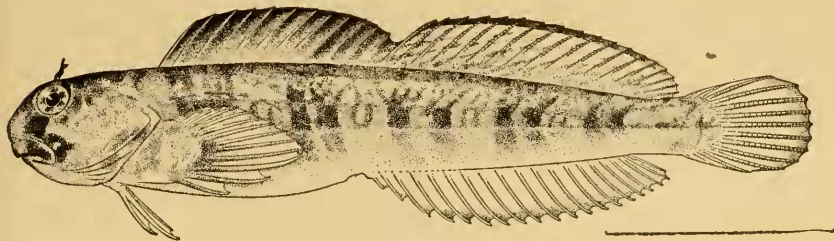


FIG. 12.—*SALARIAS TANEGASIMÆ*.

Numerous specimens, the largest 84 mm. in length, were collected at Tanegashima, and at Miyanouura, Yakushima.

The type is numbered 53274, U.S.N.M. Cotypes are 9363, Stanford University.

**PETROSCIARTES LOXOZONUS** Jordan and Starks, new species.

Head, 5 in length to base of caudal; depth,  $6\frac{2}{5}$ . Eye, 5 in head; snout,  $3\frac{1}{2}$ ; maxillary,  $3\frac{1}{5}$ ; interorbital space, 7. Dorsal XIII or XIV, 20; anal, 24.

Upper profile of head broadly rounded from nape to tip of blunt snout, sometimes the curve slightly interrupted at orbital region. Mouth small; the maxillary reaching to below middle of eye; lower jaw

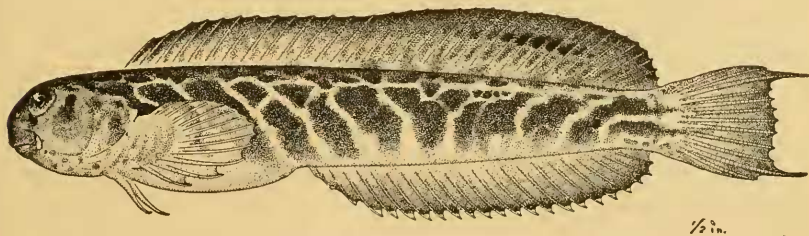


FIG. 13.—*PETROSCIARTES LOXOZONUS*.

included, the teeth sloping forward and even with those of premaxillary. Teeth in a single even row, slightly movable, but not so much so as in species of *Salaria*; a single curved canine at posterior end of premaxillary band of teeth. Interorbital space convex, no tentacles present. Gill slit scarcely reaching below upper edge of base of pectoral; its length  $\frac{1}{4}$  of diameter of eye.

Dorsal continuous, not elevated in front, and with flexible spines and rays, the latter unbranched and differentiated from the former by

cross-articulation, which are only evident under considerable magnification; the posterior 20 are rays. Base of first dorsal spine directly above gill slit. The dorsal of the male is a little higher than that of the female. In the male the longest dorsal rays are contained  $1\frac{1}{2}$  to  $1\frac{1}{4}$  in head; in the female  $1\frac{2}{3}$  to  $1\frac{1}{2}$ . Caudal in the female truncate or very slightly rounded; in the male the upper and lower rays produced and filamentous. Pectoral rounded, its length half as long as the space between its base and front of anal. Ventral with 2 rays; the inner ray the longer, reaching  $\frac{2}{3}$  of distance from its base to vent.

Color light gray; the sides crossed with many dark bands a little wider than the spaces between them, and with edges blended to the lighter color. Posteriorly the bands slope downward and forward; anteriorly, downward and backward; at a little behind the middle of the body the 2 sorts of bands are separated by a V-shaped mark. A conspicuous dark spot just behind eye. Dorsal of female without color, or light and crossed with indistinct dusky wavy lines. Dorsal of male dark, nearly black, and with a black spot across the middle of the eighth to the tenth or eleventh rays from the posterior end. Anal dusky, growing darker toward tips of rays; darker in males than in females.

This species differs from other members of its genus in the pattern of its color markings.

Numerous specimens were taken at Tanegashima, in length from 40 to 70 mm.

The type is 64 mm. in length and is numbered 53275 U.S.N.M. Cotypes are No. 9364 Stanford University.

This species belongs to the subgenus *Aspidontus*, distinguished from typical *Petroscirtes*, by the low anterior spines of the dorsal. In the type of *Petroscirtes* these are much elevated.

#### NOTE ON ANARHICHAS FASCIATUS BLEEKER.

The wolf fish mentioned by Jordan and Snyder<sup>a</sup> from Mombetsu, in Iburi, Japan, as *Anarhichas* species, is doubtless the species described from China as *Anarrhichas fasciatus*.<sup>b</sup>

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<sup>a</sup> Proc. U. S. Nat. Mus., XXV, 1902, p. 502.

<sup>b</sup> Bleeker, Nederl. Tyds., 1873, p. 151.